



## A METHODOLOGY FOR DEVELOPING STUDENTS' PROFESSIONAL COMPETENCE BASED ON THESAURUS TECHNOLOGY

Abdullayeva Nigora Shavkatovna

Docent of Applied English department, FSU

[shukronika@gmail.com](mailto:shukronika@gmail.com)

<https://orcid.org/0000-0001-7225-8025>

**MAQOLA HAQIDA**  
Qabul qilindi: 6-noyabr 2025-yil  
Tasdiqlandi: 10-noyabr 2025-yil  
Jurnal soni: 16-B  
Maqola raqami: 31  
DOI: <https://doi.org/10.54613/ku.v16i.1317>  
**KALIT SO'ZLAR/ КЛЮЧЕВЫЕ СЛОВА/ KEYWORDS**  
professional competence, thesaurus technology, terminological competence, competence-based education, knowledge organization, semantic networks

**ANNOTATION**  
This study presents a comprehensive methodology for developing students' professional competence through the systematic application of the thesaurus technology in higher education contexts. Professional competence, understood as the integration of knowledge, skills, and attitudes necessary for effective professional practice, requires structured pedagogical approaches that facilitate terminological precision, conceptual understanding, and domain-specific communication abilities. Thesaurus technology, encompassing both traditional lexicographic resources and modern computational tools, offers a robust framework for organizing disciplinary knowledge and enhancing students' mastery of professional discourse. This article examines the theoretical foundations of competence-based education and thesaurus applications, proposes a structured methodology incorporating thesaurus technology into curriculum design and instructional practice, describes implementation procedures across various educational settings, and discusses the implications for professional education. The proposed methodology integrates thesaurus construction activities, controlled vocabulary exercises, and semantic network analysis to develop students' terminological competence, conceptual mapping abilities, and professional communication skills. Findings from preliminary applications suggest that thesaurus-based approaches significantly enhance students' understanding of disciplinary knowledge structures, improve their precision in professional discourse, and facilitate the development of critical thinking skills essential for professional practice. The article concludes with recommendations for educators seeking to implement thesaurus technology in competence development programs and identifies directions for future research in this emerging pedagogical domain.

**Introduction.** The development of professional competence represents a central challenge in contemporary higher education, as institutions seek to prepare graduates who can effectively navigate increasingly complex and specialized professional environments. Professional competence extends beyond the mere acquisition of factual knowledge to encompass the integrated development of cognitive abilities, practical skills, metacognitive strategies, and professional attitudes that enable individuals to perform effectively in authentic workplace contexts. Educational researchers and practitioners have increasingly recognized that traditional transmission-based pedagogies, which prioritize information delivery over competence development, often fail to adequately prepare students for the demands of professional practice.<sup>1</sup> Consequently, there has been a growing emphasis on innovative pedagogical approaches that actively engage students in the construction of professional knowledge and the development of domain-specific competencies.

Thesaurus technology, broadly defined as systematic approaches to organizing, representing, and utilizing structured vocabularies and semantic relationships within specific knowledge domains, offers significant potential for addressing the challenges of professional competence development. While thesauri have traditionally been viewed primarily as reference tools for information retrieval and documentation purposes, recent developments in cognitive linguistics, knowledge organization theory, and educational technology have revealed their broader pedagogical applications. Thesauri function as cognitive scaffolds that make explicit the conceptual structures, hierarchical relationships, and semantic networks that characterize expert understanding within professional domains (Hedden, 2016).<sup>2</sup> By engaging with thesaurus construction and utilization activities, students can develop enhanced awareness of terminological precision, deeper understanding of conceptual relationships, and improved ability to navigate the complex knowledge landscapes that define professional fields.

The intersection of competence-based education and thesaurus technology remains relatively underexplored in educational research literature, despite the apparent complementarity of these approaches. Competence-based education emphasizes the development of demonstrable abilities to apply knowledge in authentic contexts, requiring pedagogical methods that facilitate the integration and organization of domain-specific knowledge. Thesaurus technology provides systematic frameworks for organizing professional terminology, mapping conceptual relationships, and representing domain knowledge in ways that support both learning and application. This convergence suggests that thesaurus-based methodologies could make substantial contributions to professional competence development, particularly in fields characterized by specialized vocabularies, complex conceptual hierarchies, and evolving knowledge bases.

This article addresses a significant gap in educational methodology by proposing and explicating a systematic approach to developing students' professional competence through the purposeful integration of thesaurus technology into instructional design and practice. The primary research questions guiding this investigation are: How can thesaurus technology be systematically integrated into educational programs to enhance the development of professional competence? What specific pedagogical strategies and activities effectively leverage thesaurus applications for competence development? What are the theoretical foundations and practical implications of thesaurus-based approaches to professional education? Through engagement with these questions, this study aims to provide educators with a comprehensive methodological framework that can be adapted across diverse disciplinary contexts and educational settings, ultimately contributing to more effective preparation of students for professional practice.

**Literature review.** The concept of professional competence has evolved considerably since its emergence in educational discourse during the latter decades of the twentieth century, reflecting ongoing debates about the purposes of higher education and the relationship

<sup>1</sup> Mulder, M. (2017). Competence-based vocational and professional education: Bridging the worlds of work and education. Springer.

<sup>2</sup> Hedden, H. (2016). The accidental taxonomist (2nd ed.). Information Today.

between academic learning and professional practice. Early conceptualizations of competence, influenced by behaviorist psychology and industrial training models, tended to emphasize observable performance and measurable skills acquisition. However, contemporary frameworks recognize professional competence as a multidimensional construct encompassing cognitive, functional, personal, and ethical dimensions that interact dynamically in professional contexts. Le Deist and Winterton (2005) proposed an influential holistic model identifying four interrelated competence dimensions: cognitive competence encompassing formal and tacit knowledge, functional competence involving skills and know-how, social competence including communication and interpersonal abilities, and meta-competence addressing learning capacity and reflective practice.<sup>3</sup> This multidimensional understanding has profound implications for pedagogical design, requiring instructional approaches that address all competence dimensions rather than focusing narrowly on knowledge transmission or skills training.

The pedagogical applications of thesaurus technology have been explored across various educational contexts, though systematic methodologies for professional competence development remain underdeveloped. Research in vocabulary acquisition has demonstrated that engagement with thesauri and related semantic tools enhances students' depth of word knowledge, facilitates connections between related concepts, and promotes more sophisticated use of disciplinary language (Nation, 2001).<sup>4</sup> Studies in writing instruction have shown that thesaurus consultation can improve lexical diversity and precision in student compositions, particularly when accompanied by explicit instruction in semantic relationships and contextual appropriateness. In domain-specific education, researchers have found that student participation in thesaurus construction activities promotes deeper engagement with disciplinary content, enhances awareness of conceptual structures, and develops metalinguistic understanding of how knowledge is organized within professional fields.

Cognitive theories of learning provide important foundations for understanding how thesaurus technology might support professional competence development. Schema theory suggests that expert performance depends on well-organized knowledge structures that enable rapid retrieval and flexible application of relevant information in diverse situations (Chi et al., 1981). Thesauri, by making explicit the organizational structures and relationships among concepts, can facilitate the development of more coherent and accessible schemas. Situated cognition perspectives emphasize that learning is fundamentally contextual and that competence develops through participation in authentic practices within communities of practice. Thesaurus construction and application activities can serve as legitimate peripheral participation in professional discourse communities, introducing students to the terminological conventions and conceptual frameworks that characterize expert practice (Lave & Wenger, 1991).<sup>5</sup> Cognitive load theory indicates that learners benefit from instructional designs that reduce extraneous cognitive burden while supporting germane processing directed toward schema construction. Well-designed thesaurus applications can serve as external cognitive scaffolds that reduce the load associated with retrieving and organizing domain knowledge, freeing cognitive resources for higher-order thinking and problem-solving.

**Methodology.** The development of the proposed methodology for enhancing students' professional competence through thesaurus technology followed a design-based research approach (McKenney &

Reeves, 2012)<sup>6</sup>, combining theoretical analysis, iterative design refinement, and preliminary implementation in educational contexts. Design-based research is particularly appropriate for developing educational innovations because it emphasizes the creation of theoretically grounded interventions while attending to practical implementation considerations in authentic educational settings. This methodological framework represents a synthesis of principles derived from competence-based education theory, knowledge organization research, cognitive learning theories, and practical pedagogical experience.

**Research design and context.** The research process involved several interconnected phases following the design-based research cycle: comprehensive review of relevant literature across multiple disciplines, analysis of existing thesaurus applications in educational settings, conceptual development of an integrated methodological framework, pilot implementation with student groups in higher education contexts, and iterative refinement based on feedback and observed outcomes. Pilot implementations occurred across four educational contexts between 2023 and 2024: an undergraduate applied linguistics program (n=28 students), a graduate information science course (n=15 students), a healthcare administration program (n=22 students), and an engineering technology program (n=19 students). These diverse contexts enabled evaluation of the methodology's adaptability across different disciplinary domains and educational levels. All implementations received institutional research ethics approval, and students provided informed consent for participation in data collection activities. Implementation periods ranged from eight to fifteen weeks depending on institutional calendars and curriculum structures.

**Data collection methods.** Multiple data sources provided evidence regarding learning outcomes and implementation effectiveness, following mixed-methods approaches recommended for educational design research. Quantitative data included pre-post assessments of terminological knowledge using domain-specific vocabulary tests, analysis of professional writing samples scored for terminological precision and conceptual accuracy using established rubrics, and performance on information retrieval tasks scored for search strategy sophistication and result quality. Qualitative data included student reflective journal entries analyzed using thematic analysis procedures (Braun & Clarke, 2006), semi-structured interviews with participating students (n=24) exploring their experiences and perceived learning outcomes, observations of group work sessions documented through field notes, and analysis of completed thesaurus products. Assessment instruments were developed based on established frameworks for measuring professional competence and terminological knowledge. Qualitative data analysis followed systematic coding procedures, with initial coding conducted independently by two researchers and discrepancies resolved through discussion to ensure reliability.

**Implementation procedures.** Successful implementation of this methodology requires careful attention to curriculum integration, instructional sequencing, resource provision, and assessment alignment. The methodology can be implemented across various timescales, from intensive workshops to semester-long courses to multi-year program integration, with appropriate modifications for each context. A typical semester-long implementation follows a developmental sequence that gradually increases complexity and student autonomy, as outlined in Table 1.

**Table 1: Implementation Timeline for Semester-Long Thesaurus-Based Competence Development**

Phase	Duration	Primary Activities	Learning Outcomes	Assessment Methods
Foundational Literacy	Weeks 1-3	Thesaurus theory presentations; Examination of exemplar thesauri; Relationship identification exercises; Terminology analysis workshops	Understanding of thesaurus structures; Ability to identify hierarchical and associative relationships; Recognition of controlled vocabulary principles	Formative quizzes; Relationship mapping exercises; Analysis of sample thesauri
Terminology Collection	Weeks 4-5	Systematic collection from professional texts; Source documentation; Initial term categorization; Group coordination meetings	Comprehensive domain terminology database; Awareness of terminology diversity; Recognition of synonymy and polysemy	Collection completeness checklists; Source documentation review; Term categorization accuracy

<sup>3</sup> Le Deist, F. D., & Winterton, J. (2005). What is competence? Human Resource Development International, 8(1), 27-46.  
<sup>4</sup> Nation, I. S. P. (2001). Learning vocabulary in another language. Cambridge University Press.

<sup>5</sup> Lave, J., & Wenger, E. (1991). Situated learning: Legitimate peripheral participation. Cambridge University Press.  
<sup>6</sup> McKenney, S., & Reeves, T. C. (2012). Conducting educational design research. Routledge.

Hierarchical Structuring	Weeks 6-8	Broader/narrower term identification; Hierarchical tree construction; Peer consultation; Instructor feedback sessions	Coherent hierarchical organization; Understanding of conceptual levels; Recognition of multiple classification possibilities	Structure logic evaluation; Hierarchy completeness; Peer review feedback
Relationship Mapping	Weeks 9-10	Related term identification; Associative connection establishment; Cross-reference development; Integration activities	Rich semantic network; Understanding of conceptual associations; Awareness of knowledge interconnections	Relationship appropriateness; Network coherence; Cross-reference accuracy
Definition Development	Weeks 11-12	Scope note writing; Definition crafting; Usage example development; Terminology refinement	Clear term definitions; Contextual usage guidance; Precision in terminological expression	Definition clarity; Scope appropriateness; Usage example relevance
Applied Utilization	Weeks 10-14	Professional writing tasks; Information retrieval exercises; Problem-solving cases; Cross-linguistic activities	Strategic thesaurus application; Enhanced information literacy; Improved professional communication	Writing quality assessment; Search effectiveness; Problem solution quality
Metacognitive Reflection	Weeks 13-15	Portfolio development; Reflective essay writing; Group discussions; Self-assessment activities	Awareness of learning processes; Critical understanding of knowledge organization; Recognition of competence development	Portfolio depth; Reflection quality; Self-assessment accuracy

The initial phase, spanning approximately three weeks, focuses on establishing foundational thesaurus literacy and introducing students to basic concepts of knowledge organization. Instruction includes presentations on thesaurus theory and structure, examination of exemplar thesauri, and guided analysis activities. Students complete exercises in identifying hierarchical relationships, distinguishing synonyms from related terms, and interpreting scope notes. Formative assessments verify basic understanding before proceeding to construction activities.

The construction phase, extending six to eight weeks, engages students in collaborative development of domain-specific thesauri. Students form working groups of four to six members, each group focusing on a particular subdomain or aspect of the professional field. Groups engage in systematic terminology collection from assigned professional texts and authentic workplace documents. Structured worksheets guide analysis of collected terms, identification of relationships, and development of hierarchical structures. Weekly group meetings with instructor facilitation provide feedback and address challenges. Digital collaboration platforms enable asynchronous work and version control. Mid-construction peer review sessions, where groups present work-in-progress to classmates, generate valuable feedback and cross-pollination of ideas. The construction phase culminates in presentation of completed thesaurus sections and integration into a comprehensive class thesaurus resource.

The application phase, running concurrently with construction activities and continuing for several weeks thereafter, involves diverse exercises in thesaurus utilization for professional tasks. Students complete writing assignments requiring integration of precise terminology from the class thesaurus, with assessment criteria including appropriate term usage and conceptual accuracy. Information retrieval challenges require strategic thesaurus consultation to develop effective search strategies for professional databases. Case study analyses involve using thesaurus structures to identify relevant concepts and organize solutions to professional problems. Cross-linguistic translation exercises, where applicable, engage students in developing terminological correspondences using comparative thesauri. These varied applications reinforce learning while demonstrating practical relevance of thesaurus competence.

The reflection phase, integrated throughout implementation but emphasized in the final weeks, engages students in metacognitive analysis of their learning processes and competence development. Students maintain learning journals documenting their evolving understanding of professional terminology and knowledge organization. Final reflective essays prompt analysis of how participation in thesaurus activities has influenced their understanding of the professional field and their developing professional identity. Group discussions explore insights gained from the construction process and applications to future professional practice. Self-assessment activities enable students to evaluate their terminological competence and identify areas for continued development.

Assessment strategies. Assessment within this methodology encompasses formative and summative approaches aligned with competence development objectives (Black & Wiliam, 1998). Formative assessment occurs throughout implementation, providing feedback that guides learning and enables instructional adjustments. During the construction phase, formative assessment includes review of terminology collection completeness and quality, evaluation of relationship identification accuracy, and feedback on hierarchical structure logic. Instructor observations of group work processes inform interventions to support collaboration and conceptual development. Peer review activities generate formative feedback that promotes reflection and revision.

Summative assessment evaluates students' achievement of professional competence objectives through multiple methods. The completed thesaurus product is assessed using criteria including terminological comprehensiveness, relationship accuracy, hierarchical structure coherence, definition quality, and overall usability. Individual contribution to group work is evaluated through peer assessment and documentation of specific responsibilities. Professional writing products utilizing thesaurus resources are assessed for terminological precision, conceptual accuracy, and appropriate application of domain vocabulary. Performance on information retrieval tasks demonstrates ability to strategically employ controlled vocabularies. Reflective portfolios are evaluated for depth of metacognitive awareness, critical analysis of knowledge organization, and articulation of competence development. Table 2 presents the comprehensive assessment framework with criteria aligned to specific competence dimensions.

**Table 2: Assessment Framework for Thesaurus-Based Professional Competence Development**

Competence Dimension	Assessment Method	Specific Criteria	Scoring Rubric Levels	Weight
<b>Terminological Competence</b>	Domain vocabulary test (pre-post); Professional writing analysis	Accurate term identification and definition; Appropriate term usage in context; Understanding of synonymy and polysemy; Precision in professional discourse	Novice: <60% accuracy; Developing: 60-75%; Proficient: 76-89%; Expert: 90-100%	25%
<b>Conceptual Understanding</b>	Thesaurus hierarchy evaluation; Concept mapping assessment;	Correct broader/narrower term relationships; Logical hierarchical organization; Appropriate related term connections; Depth of conceptual	Novice: Minimal hierarchy, few accurate relationships; Developing: Basic hierarchy, some accurate relationships; Proficient: Coherent	25%

	Relationship identification accuracy	analysis; Recognition of multiple classification schemes	hierarchy, mostly accurate relationships; Expert: Sophisticated hierarchy, all relationships accurate	
<b>Procedural Knowledge</b>	Information retrieval performance; Problem-solving case studies; Search strategy evaluation	Strategic use of controlled vocabularies; Effective query formulation; Application of broader/narrower terms for search refinement; Use of related terms for search expansion; Problem-solving effectiveness	Novice: Random searching, <40% success rate; Developing: Basic strategies, 40-65% success; Proficient: Systematic strategies, 66-85% success; Expert: Sophisticated strategies, >85% success	20%
<b>Metacognitive Awareness</b>	Reflective portfolio analysis; Learning journal evaluation; Self-assessment accuracy	Articulation of learning processes; Recognition of knowledge gaps; Monitoring of comprehension; Self-directed learning strategies; Critical reflection on knowledge organization; Accuracy of self-evaluation	Novice: Descriptive reflection only; Developing: Some analytical reflection; Proficient: Consistent analytical reflection; Expert: Critical and transformative reflection	15%
<b>Professional Communication</b>	Writing assignments; Oral presentations; Documentation quality	Clarity and precision of expression; Appropriate professional register; Effective use of disciplinary discourse; Audience adaptation; Definition and scope note quality	Novice: Vague, imprecise language; Developing: Generally clear, some precision; Proficient: Clear, precise, appropriate register; Expert: Sophisticated, nuanced professional communication	15%

This comprehensive assessment approach enables evaluation of multidimensional professional competence while providing students with clear expectations and meaningful feedback throughout the learning process. The distribution of assessment weights reflects the relative emphasis on different competence dimensions while ensuring that no single component dominates the evaluation. The rubric levels provide clear progression pathways from novice to expert performance, supporting both formative feedback and summative evaluation.

**Results.** Observed Learning Outcomes. Students participating in thesaurus-based competence development programs demonstrated significant gains across multiple dimensions of professional competence. Terminological competence, assessed through pre-post vocabulary tests and analysis of professional writing samples, showed marked improvement. Students exhibited enhanced precision in terminology use, demonstrated through reduction in inappropriate synonyms, decreased ambiguity in technical communication, and increased awareness of contextual appropriateness for specialized terms. Analysis of professional writing assignments revealed that students who engaged in thesaurus construction activities used domain-specific terminology with significantly greater accuracy and sophistication compared to control groups receiving traditional vocabulary instruction. Pre-test vocabulary scores averaged 58.3% (SD=11.2) across all implementation contexts, while post-test scores averaged 79.7% (SD=9.8), representing an average improvement of 21.4 percentage points. Moreover, students demonstrated improved ability to distinguish among closely related concepts, a skill essential for precise professional communication.

Conceptual understanding of domain knowledge structures, evaluated through concept mapping exercises and verbal protocols during problem-solving tasks, deepened substantially through thesaurus construction activities. Students developed explicit awareness of hierarchical relationships among concepts, recognizing how their professional fields organize knowledge from general principles to specific applications. Interviews with participating students revealed that the process of determining broader term and narrower term relationships prompted critical analysis of conceptual hierarchies that had previously remained tacit or vague. One information science student noted in their reflective journal: "Building the thesaurus made me really think about how all these concepts connect. I had to figure out which terms were more general and which were specific examples, and that helped me understand the whole field better." Post-intervention concept maps demonstrated significantly greater structural complexity, more accurate hierarchical organization, and richer specification of relationships among concepts compared to pre-intervention maps. The average number of concepts included in student-generated concept maps increased from 12.4 (SD=3.6) pre-intervention to 23.7 (SD=5.2) post-intervention, while the proportion of accurate hierarchical relationships increased from 64% to 91%.

Information seeking and retrieval competence improved notably among students who engaged with thesaurus utilization activities.

Performance on authentic information retrieval tasks, where students searched professional databases to locate resources addressing specific workplace scenarios, demonstrated that thesaurus-trained students employed more sophisticated search strategies, generated more effective query terms, and achieved higher precision in search results compared to baseline performance. Students explicitly referenced their thesaurus construction experience as helping them understand how information systems organize content and how strategic terminology selection affects retrieval effectiveness. Search precision rates improved from an average of 0.42 (SD=0.15) at baseline to 0.71 (SD=0.12) post-intervention, while the number of relevant documents identified per task increased from 3.2 (SD=1.8) to 5.8 (SD=1.4). This competence has direct implications for professional practice, where effective information seeking is essential for evidence-based decision-making and staying current with field developments.

Metacognitive awareness and self-directed learning capabilities, assessed through reflective portfolios and self-assessment instruments, showed meaningful development through participation in thesaurus-based activities. Students articulated increased awareness of their own learning processes, describing how constructing thesaurus entries required them to actively process and organize information rather than passively receiving it. Reflective writings revealed students' recognition of knowledge gaps and their development of strategies for addressing these gaps through targeted learning. Students reported enhanced confidence in their ability to independently navigate and master new areas of professional knowledge, attributing this confidence to the organizational frameworks and learning strategies developed through thesaurus work. Portfolio analysis revealed that 73% of students achieved only descriptive reflection levels at the beginning of implementation, while 81% demonstrated analytical or critical reflection by the conclusion. One healthcare administration student wrote: "Before this, I just tried to memorize terms. Now I understand that organizing concepts hierarchically helps me remember them better and understand how they relate. I can use this approach in other courses and in my career."

**Comparative Analysis Across Implementation Contexts.** The methodology's effectiveness varied somewhat across different disciplinary contexts, revealing important considerations for adaptation and implementation, as summarized in Table 3. In highly standardized domains with well-established controlled vocabularies, such as healthcare and information science, students benefited particularly from examining and analyzing existing professional thesauri, gaining insight into how expert communities organize knowledge. Thesaurus construction in these contexts often involved adapting and extending existing structures to address specialized subdomains or emerging areas. Students appreciated the connection to authentic professional resources and tools they would encounter in practice. Assessment results showed strong gains in terminological precision and information retrieval competence, likely reflecting these fields' explicit emphasis on standardized terminology and systematic knowledge organization.

Table 3: Comparative Learning Outcomes Across Disciplinary Contexts

Outcome Measure	Applied Linguistics (n=28)	Information Science (n=15)	Healthcare Admin (n=22)	Engineering Tech (n=19)	Overall Average
<b>Terminological Competence</b>					
Pre-test vocabulary score	56.2% (SD=12.4)	62.1% (SD=9.8)	59.8% (SD=10.5)	55.3% (SD=12.1)	58.3% (SD=11.2)
Post-test vocabulary score	74.8% (SD=11.2)	86.9% (SD=7.3)	83.2% (SD=8.9)	74.5% (SD=10.8)	79.7% (SD=9.8)
Improvement	+18.6 points	+24.8 points	+23.4 points	+19.2 points	+21.4 points
<b>Conceptual Understanding</b>					
Concept map complexity (post)	21.3 concepts	26.8 concepts	24.1 concepts	22.6 concepts	23.7 concepts
Accurate hierarchical relationships	87%	94%	93%	88%	91%
<b>Information Retrieval Performance</b>					
Search precision (baseline)	0.38	0.48	0.45	0.39	0.42
Search precision (post-intervention)	0.64	0.81	0.76	0.68	0.71
Improvement	+0.26	+0.33	+0.31	+0.29	+0.29
<b>Metacognitive Awareness</b>					
Students achieving critical reflection	89%	73%	77%	84%	81%
<b>Student Satisfaction</b>					
Course evaluation rating (5-point scale)	4.3	4.5	4.4	4.2	4.4
Would recommend to peers	86%	93%	91%	84%	89%

**Discussion.** In more interpretive and less standardized domains, such as certain areas of applied linguistics and humanities-oriented professional programs, thesaurus construction proved particularly valuable for making explicit the contested and evolving nature of professional terminology. Students engaged in substantive discussions about alternative conceptualizations, disciplinary debates reflected in terminology choices, and the theoretical assumptions embedded in knowledge organization schemes. While achieving consensus on hierarchical structures proved more challenging in these contexts, the process generated valuable critical analysis of how language shapes professional understanding. Assessment results in these domains showed particularly strong gains in metacognitive awareness and critical thinking about knowledge organization, with 89% of applied linguistics students achieving critical reflection levels compared to an overall average of 81%. However, gains in standardized information retrieval tasks, while still substantial, were somewhat less pronounced than in more standardized fields, likely reflecting the relative absence of universally accepted controlled vocabularies in these disciplines.

Graduate students and advanced undergraduates appeared to derive somewhat greater benefits from the methodology compared to beginning students, likely reflecting the importance of adequate domain knowledge as a foundation for meaningful thesaurus construction. However, when appropriately scaffolded with clear

models, structured worksheets, and frequent feedback, even novice students successfully engaged with thesaurus activities and demonstrated competence gains. The key appeared to be ensuring that students possessed sufficient familiarity with basic domain concepts before engaging in complex relationship mapping and hierarchical structuring activities. A preliminary phase involving extensive reading and exposure to professional discourse proved essential for less experienced students, suggesting that the foundational literacy component should be extended and enriched when working with novice learners.

**Conclusion.** This study proposed and evaluated a comprehensive methodology for developing students' professional competence through systematic integration of thesaurus technology into higher education programs. The methodology addresses significant gaps in existing pedagogical approaches by providing structured frameworks for enhancing terminological competence, conceptual understanding, information literacy, metacognitive awareness, and collaborative capabilities essential for professional practice. Grounded in competence-based education theory, knowledge organization principles, and cognitive learning theories, the methodology integrates four synergistic components: foundational thesaurus literacy, domain-specific thesaurus construction, applied thesaurus utilization, and metacognitive reflection.

## References

- Black, P., & Wiliam, D. (1998). Assessment and classroom learning. *Assessment in Education*, 5(1), 7-74.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.
- Chi, M. T. H., Feltovich, P. J., & Glaser, R. (1981). Categorization and representation of physics problems by experts and novices. *Cognitive Science*, 5(2), 121-152.
- Coxhead, A. (2000). A new academic word list. *TESOL Quarterly*, 34(2), 213-238.
- Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. *American Psychologist*, 34(10), 906-911.
- Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences*, 111(23), 8410-8415.
- Hedden, H. (2016). *The accidental taxonomist* (2nd ed.). Information Today.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge University Press.
- Le Deist, F. D., & Winterton, J. (2005). What is competence? *Human Resource Development International*, 8(1), 27-46.
- McKenney, S., & Reeves, T. C. (2012). *Conducting educational design research*. Routledge.
- Mulder, M. (2017). *Competence-based vocational and professional education: Bridging the worlds of work and education*. Springer.
- Nation, I. S. P. (2001). *Learning vocabulary in another language*. Cambridge University Press.
- Schön, D. A. (1983). *The reflective practitioner: How professionals think in action*. Basic Books.